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JOHN'S CORNER:

NEWS FROM THE WONDERFUL WORLD OF SOIL AND PLANTS

by John Ferguson

One of the common spices many of us love is cinnamon. It is obtained from the inner bark of several trees in the genus *Cinnamomum*. Many studies have shown this spice can be used to help control diabetes, kill viruses and infections, and help with cramps. When we consume cinnamon on a regular basis, it has been found to help prevent cold and flu viruses. It helps improve motor function, increase the health of our neurons, and boost our memory. It has also been found that it can increase our good cholesterol and lower bad cholesterol. Many have found that it can help clear mucus and improve our circulation. Animal studies have shown that it can help protect the body from carcinogens.

Another study from Rush University Medical Center found that feeding cinnamon to mice with poor learning ability made the mice better learners. The cinnamon reversed biochemical, cellular and anatomical changes that led to poor learning. Science Daily July 7, 2016 summarizing a study in *Journal of Neuroimmune Pharmacology* 2016.

A study from the *Journal of the European Society of Endocrinology* (2016) has found that happy cows produce higher quality of milk. They found that serotonin a chemical associated with the feelings of happiness, plays a role in maintaining calcium levels. Pasture raised cattle are happier than those confined to a feedlot leading to higher quality milk and beef.

As part of our sustainability effort, more people are using grey water for irrigation, which is often high in salt (NaCl). Researchers have found that some species of plants are very sensitive to the salt in the grey water. Sweetspire exhibited symptoms of stress when grey water was used to water them. Other species like Anise and muhly grass were very tolerant of the salts in grey water. *HortTechnology* June 2016.



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Many reports are showing up on the news about toxic algae showing up on Florida's beaches. It has been found that this was caused by the application of Biosolids (sewage sludge) applied to areas near the contamination sites. Even though they pass federal regulations Biosolids often contain dangerous bacteria and other pathogens and regularly test for heavy metals, flame retardants, pharmaceuticals, phthalates, dioxins and other dangerous components. This is important for gardeners since many compost companies regularly use Biosolids in their compost (including several in Texas). It does increase nutrient content and is cheap, but the low cost comes at a price to our health and environment.

In the July 7th issue of PLOS Pathogens, researchers have found that a species of fungus (*Metarhizium brunneum*) will kill the larva of the *Aedes* mosquito that transmit the diseases of zika, dengue and chikungunya diseases. After exposure to this fungus, the larva dies within 12-24 hours.

All gardeners love butterflies. A study from the University of Connecticut has found that several species of butterflies such as Northern Hairstreaks will feed on non-nectar sources such as oak galls and honeydew from aphids and other insects.

In the Journal Plant Biology, researchers have found that when plants were injured and are threatened by insects it disrupts the electrical signals that plant cells use to communicate.

An article in American Nurseryman has reported that the emerald ash borer has now reached Texas. Several biocontrol agents (tiny parasitic wasps) have proven to be extremely effective in controlling this pest. They observed a 90% decline in live larva in infected trees when the wasps were used as a biocontrol agent.

Many garden centers still sell an invasive plant called heavenly bamboo (*Nadina domestica*). This plant is poisonous as it contains cyanide. There are reports of cedar waxwings dying from eating the berries. Horticulture, July/August 2016.

New information (research) on the importance on microbes for soil, plants, animals, and people seem to be released almost daily. In the journals Genome Medicine (2016) and Arthritis & Rheumatology



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(2016) two separate studies found that bacteria in our guts can predict rheumatoid arthritis. They identified species of bacteria that are rare or absent in healthy people but are in high levels in those with arthritis. In animal studies, they found that treating with certain good bacteria decreased symptom frequency and severity. There were also less inflammatory conditions associated with arthritis.

Researchers at Duke University have been studying the microbiome as plants are home to millions of microbes. There can be thousands of different species of bacteria within a single leaf. They also found 4,000 species of bacteria living inside of plants. Plant roots had 2-10 times more bacteria than leaves. Science Daily July 7, 2016.

Several studies have found that wood pulp (think sawdust) was added to Parmesan cheese in multiple brands sold by Wal-Mart, Whole Foods, and Kraft amongst others. Several lawsuits by the FDA are pending for false advertizing.